



Tree planting at Fofanny water treatment works, Newry, County Down.

Strategic areas of focus



Sustainable development goals



Principal threats/opportunities



Page 76 Read more about principal threats and opportunities.

Strategic performance indicators

Nature	Unit of measurement	Target 2024/25	Actual 2024/25	Pass/Fail	Target 2025/26
Reduction in pollution incidents - sewage (high and medium)*	Number	9	8	Pass	8
Wastewater compliance (% population equivalent served)**	%	95.6	99.3	Pass	95.6
Reduction in number of properties at risk of out of sewer flooding (cumulative over 2021-27 period)	Number	26	31	Pass	36
Reduction in carbon footprint. Relates to reduction in carbon emissions measured in tonnes of carbon dioxide equivalent (tCO ₂ e)	%	***	***	***	***

* Calendar year target.

** Calendar year target. Based on pre-announced rather than un-announced regulatory sampling at the treatment works and the reported wastewater compliance doesn't incorporate flow compliance for the wastewater treatment works or the sewer network. It is recognised that wastewater regulation reform will result in new evidence, which will highlight non-compliance across our wastewater infrastructure.

*** Annual targets to be set in 2025/26 aligned with our new Climate Transition Plan.

More resilient network

Reducing pollution and sewer flooding

In 2024/25, NI Water recorded eight medium severity pollution incidents, which is one incident below our target. Following this, we conducted a comprehensive review of our Pollution Management Strategy and identified several enhancements to further improve performance. These include the expanded installation of event and duration monitors and the implementation of a more robust end-to-end process for incident management.

Flooding and the associated risks continue to pose significant challenges. They can hinder economic development, raise insurance costs, and harm the natural environment. Much of Northern Ireland's urban infrastructure relies on combined sewer systems, which carry both wastewater and surface water - a design that would not be considered best practice today.

The impact of climate change, particularly the increased intensity and frequency of rainfall, has placed additional strain on these systems. During heavy rain, sewers can become overwhelmed, leading to sewage backups. To mitigate this, many traditional systems include combined sewer overflows, which are designed

to discharge excess water directly into rivers or streams, bypassing treatment works to prevent property damage and out-of-sewer flooding.

As part of our PC21 Business Plan, we have set ambitious targets for stormwater removal. These efforts aim to reduce the risk of property flooding, enhance environmental quality, and support sustainable economic growth. The programme is already underway, with investigation studies and hydraulic modelling in progress.

We removed 270,644 m² of impermeable surface area by the end of 2024/25 through direct capital investment projects such as storm separation and Sustainable Urban Drainage Systems. This exceeds our target, marking a significant milestone in our commitment to climate resilience and infrastructure improvement.



Find out more about climate resilience at <https://www.niwater.com/climatechange/strategy/>

Hat-trick for Ravenhill Avenue Flood Alleviation Project

The project team for the Ravenhill Avenue Flood Alleviation Project has recently been awarded three major awards - a hat-trick! at the Construction Employers Federation Excellence Awards. The team were honoured to collect a Social Value Award, Infrastructure project of the year, and a Judges' bonus award - Achieving Excellence in Partnering. The £7m Flood Alleviation Project for the Ravenhill Avenue Area of South Belfast was recently delivered as part of the Living with Water in Belfast Plan, which aims to help protect against flooding, enhance the water environment and provide the increased capacity needed for economic growth.



NI Water project team collecting three major awards at the CEF Excellence Awards.



<https://www.youtube.com/watch?v=UVovASjUqc0&t=19s>

Completing the picture on wastewater compliance

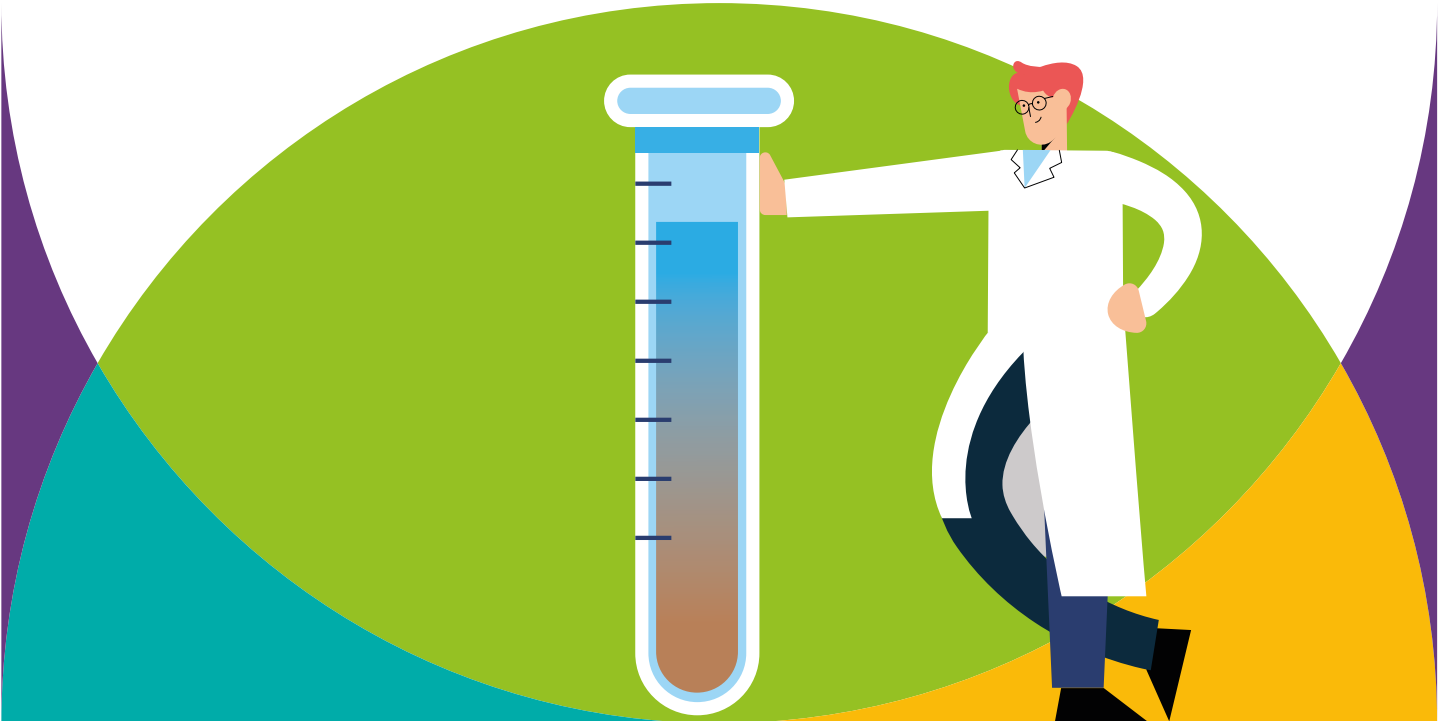
NI Water recognises the urgent need to modernise how wastewater compliance is assessed. The current regulatory framework relies on pre-announced sampling at treatment works and does not account for flow compliance across treatment facilities or the wider sewer network. As a result, it offers only a partial view of environmental compliance and protection. To address this, we are collaborating with the NIEA and other key stakeholders through the Water Regulation Reform Programme. This initiative aims to deliver a more holistic and transparent compliance model that reflects the performance of the entire wastewater system-enhancing visibility for both regulators and customers.

A Wastewater Regulation Compliance Reform Group has been established, comprising senior representatives from NI Water and NIEA. This group will serve as the central interface for delivering the reform programme over PC21. It is acknowledged that the introduction of a more comprehensive regulatory model will likely reveal new areas of non-compliance across our infrastructure.

Ongoing work with NIEA includes the development of updated compliance assessment methodologies, such as guidance on Flow and Event Duration Monitoring, priority substances, and catchment-based outcomes. Investment requirements to support these reforms are also being considered as part of the PC28 Business Plan.

In parallel, NIEA has proposed withdrawing from the current Statement of Regulatory Principles and Intent and has initiated a consultation with NI Water and DfI. This consultation is ongoing, and NI Water is actively considering its response.

Throughout 2024/25, we continued our wastewater regulatory monitoring programme, which is helping to build a robust dataset on treatment works performance. Additionally, we have begun establishing an independent wastewater compliance team to provide assurance on the effective management of our wastewater assets.



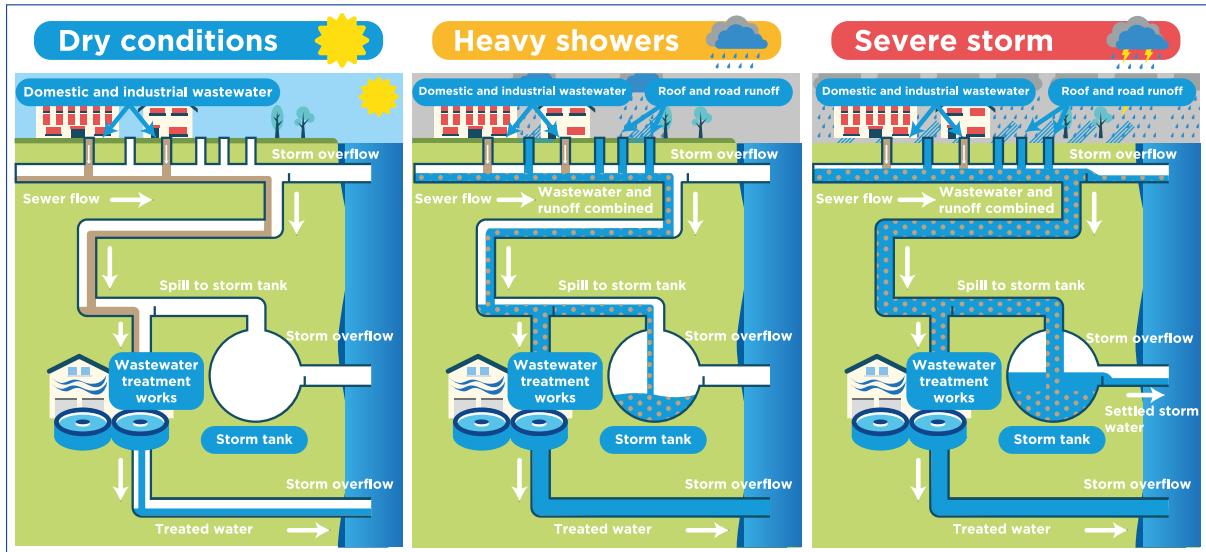
Storm overflows

During periods of heavy rainfall, highly diluted wastewater may be discharged from storm overflows - a designed feature of the wastewater system that acts as an emergency relief mechanism. These overflows are essential for preventing flooding in homes, businesses, and schools, which would otherwise pose serious public health risks.

Northern Ireland has a higher number of storm overflows per capita than many other parts of the UK. Historically, it was more cost-

effective to install additional overflows than to invest in diverting rainwater at the source or constructing larger pipes and storage tanks. While this approach has contributed to the lowest rate of internal sewer flooding in the UK, it has also resulted in higher volumes of wastewater entering rivers, lakes, and coastal waters.

The diagram below shows how the combined sewerage system operates and how spills can occur as rainfall intensifies:

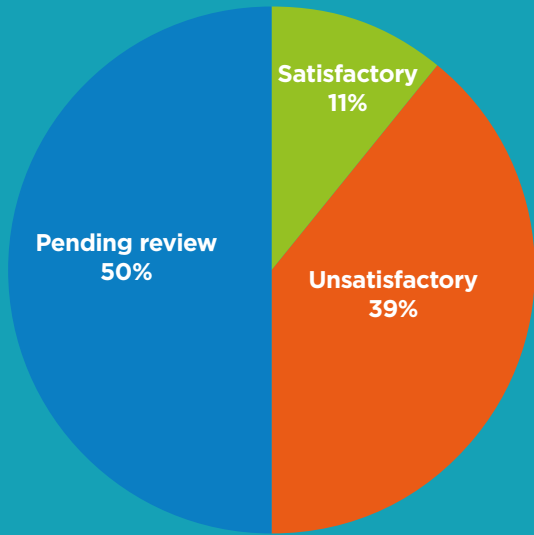


As rainfall becomes more intense and frequent due to climate change, many overflows are operating more often, leading to increased pollution. This is compounded by new housing and commercial developments that have not been matched with corresponding investment in wastewater infrastructure. As a result, significant volumes of wastewater are lost from the network before reaching treatment works.

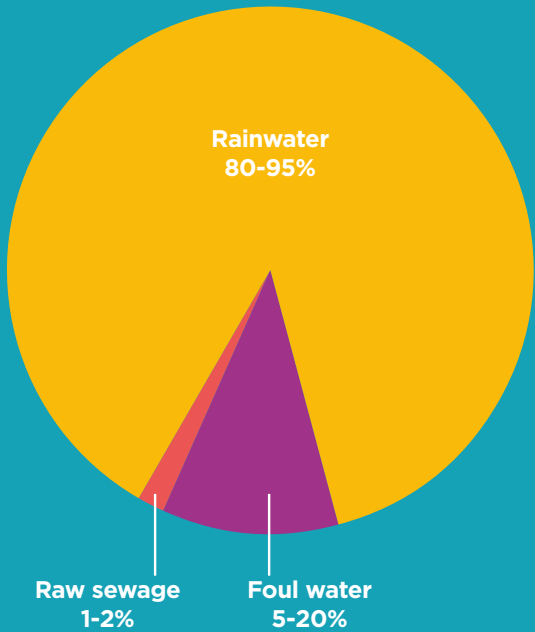
The NIEA sets standards for storm overflows, allowing discharges of diluted wastewater during prolonged heavy rainfall - typically when receiving waters are fast-flowing. Stricter standards apply to sensitive areas, such as bathing and shellfish waters, to prevent ecological damage, protect public health and support economic growth. However, modelling shows that many overflows exceed these limits, contributing to the decline in water quality across rivers, lochs, and coastal areas.

NI Water manages approximately 2,500 storm overflows. Over PC21, we are rolling out Event Duration Monitors to better understand the frequency and duration of these discharges. By 2027, we aim to have over 700 monitors installed, covering around 30% of all storm overflows. Initial assessments reveal that around 75% of evaluated overflows do not meet NIEA standards. It's important to note that pollution sources vary by catchment, with agricultural practices and private drainage systems also contributing significantly in some areas.

Status of NI Water's 2,500 storm overflows



Make-up of typical wastewater spill during storm conditions



Through collaborative modelling of drainage systems and catchment environments with the NIEA, NI Water is gaining valuable insights into where future investment should be prioritised to reduce wastewater spills. Our predictive models estimate that between 16 and 20 million cubic metres of wastewater are discharged annually from storm overflows. This figure is expected to increase by approximately 10% as modelling is completed across all catchments. While these discharges are primarily composed of rainwater, they typically contain 1-2% raw sewage during periods of heavy rainfall. Initial cost estimates suggest that between £3bn and £4bn would be required to address all unsatisfactory storm overflows. An additional £3bn may be needed to meet the enhanced regulatory standards currently being introduced in England. These findings underscore the scale of investment needed to modernise Northern Ireland's wastewater infrastructure and align with evolving environmental expectations.

Find out more at <https://www.niwater.com/storm/overflow/>

Living with Water Programme (LWWP)

The Living with Water Programme is a multi-agency initiative focused on delivering integrated and sustainable drainage and wastewater infrastructure. It promotes holistic solutions that deliver multiple benefits - including environmental protection, flood resilience, and urban regeneration - while minimising cost and disruption.

Following endorsement by the Northern Ireland Executive, DfI published the detailed £1.4bn Living with Water in Belfast Plan in November 2021. NI Water subsequently began the delivery phase. By the end of 2024/25, several early-stage projects had been completed or substantially progressed. These included a £7m investment in the new Kennedy Way Hub in West Belfast, providing a modern base for over 90 operational staff. This enabled the closure of the Bretland Hub, freeing up space to double the capacity of the Belfast wastewater treatment works. We appointed teams to design and deliver major infrastructure upgrades, including wastewater treatment works for Belfast, Kinnegar and Whitehouse along with the replacement of Sydenham Wastewater Pumping Station. Outline designs for each of these major projects were completed. However, in late 2024, DfI informed NI Water that a strategic review had concluded the original 12-year delivery timeline for the Belfast Plan was no longer achievable. As a

result, the Plan will no longer proceed as a formal programme. Instead, delivery will be undertaken by individual partners, including NI Water, at a scale and pace aligned with available budgets. Given the significant and sustained investment required for the major projects - resources that are currently unavailable - these projects have been largely paused. NI Water commenced a programme of essential maintenance in April 2025 to ensure that the existing facilities operate as effectively as possible until they have been upgraded. NI Water has outlined the implications of this pause in its publication, The Story of Belfast Lough.



Find out more at <https://www.niwater.com/siteFiles/resources/pdf/2024/StoryofBelfastLoughV13221024.pdf>

A more high-level Living with Water plan has been published for Derry/Londonderry, which NI Water plans to support.



Find out more at <https://www.infrastructure-ni.gov.uk/topics/living-water-derry>



Find out more at <https://www.infrastructure-ni.gov.uk/topics/living-water-programme>

Sustainable solutions

Hydrogen and Oxygen Demonstrator Project

The results of our interim report on exploring the use of oxygen-enriched air in the secondary phase of wastewater treatment suggest that this approach could lead to increased treatment capacity, reduced energy consumption, and lower greenhouse gas emissions. These findings build on the success of the proof-of-concept oxygen trial at Kinnegar wastewater treatment works, which demonstrated the potential for oxygen to enhance the efficiency and effectiveness of the treatment process. The interim report is part of NI Water's broader Hydrogen and Oxygen Demonstrator Project, which ultimately aims to install a 1MW electrolyser at Belfast wastewater treatment works. This electrolyser will showcase how electrolysis - the process of splitting water into hydrogen and oxygen using electricity - can use oxygen to improve wastewater treatment performance and produce green hydrogen by harnessing renewable electricity,

supporting NI Water's decarbonisation goals. These developments mark a significant step forward in integrating innovative, low-carbon technologies into wastewater operations.



Hydrogen and Oxygen Demonstrator Project at Belfast wastewater treatment works, County Antrim.

Wastewater treatment using wetland system

To mark World Environment Day, NI Water proudly announced the start of a £4.1m sustainable upgrade to the Aghanloo wastewater treatment works, located just outside Limavady, County Derry/Londonderry. Originally constructed in the early 1970s to serve a population equivalent of 550, the existing facility had been operating well beyond its design capacity - treating wastewater for nearly 900 people. This overcapacity had begun to place development constraints on the surrounding catchment area.

The upgrade introduces an innovative, nature-based solution using Phragmifilte technology, a green system based on reed beds. This cutting-edge approach treats raw sewage entirely within a single wetland system, requiring minimal to no energy, resulting in ultra-low operational costs. The new system is designed to serve the area sustainably through to 2044. Key features of the project include over 10,000 reeds planted across more than 3,000 m², creating a fully natural treatment environment. There

will be six reed beds in total - covering an area equivalent to 16 tennis courts - delivering a powerful green solution to wastewater management. The new Aghanloo Wastewater Treatment Works is on track for completion and commissioning in autumn 2025, representing a major step forward in NI Water's commitment to sustainable infrastructure and environmental stewardship.



Construction of reed beds at Aghanloo wastewater treatment works, County Derry/Londonderry.

Nature Protecting and enhancing the natural environment

Keep it clear

We deal with around 10,000 blockages of our sewers each year. The most common cause of these blockages is the flushing of items which do not dissolve down the toilet such as wet wipes and the disposal of fats, oils, and grease down the sink. These combine to form a solid mass in the pipes underground, meaning less waste can pass through the pipe. If enough waste cannot pass through, it leads to flooding in homes, business, or our natural environment.

The UK has launched a concerted effort to phase out wet wipes containing plastic. In November 2024, Northern Ireland officially notified the World Trade Organization of its

intention to prohibit the sale and supply of these products. Similar measures have been introduced in Scotland and England, with regulations expected to take full effect within 18 months after its publication. Regulations were expected by the end of 2024 but are not published yet. This ban covers a wide range of single-use wet wipes, including those commonly found in personal care items such as baby wipes, facial wipes to remove make-up, and sheet masks. The primary aim is to mitigate the severe environmental damage caused by plastic-based products, which contribute significantly to pollution and harm aquatic ecosystems.

What Lies Beneath! Innovative FOG Technology

NI Water is now operating innovative FOG technology, which allows us to identify properties where foul drains, which include drainage from bathrooms and washing machines, are misconnected to

the stormwater drains/sewers. Stormwater drains should only carry rainwater from roofs and driveways and this misconnection can cause environmental pollution in watercourses downstream.



NI Water staff member using FOG technology to identify sewer misconnections.

 <https://youtu.be/LbcAL6nHjog>

Nature Protecting and enhancing the natural environment

Bin it

NI Water's ongoing 'Bin it' campaign remains a key part of its environmental outreach, strategically timed around high-risk periods such as Christmas and Easter. These times often see increased issues with fats, oils, and grease being improperly disposed of due to holiday cooking and gatherings.

To amplify the message, NI Water runs targeted initiatives in known problem areas. These include issuing press releases and sharing impactful images of out-of-sewer flooding. These visuals are repurposed into social media content and distributed to local media outlets to raise awareness.

We deliver tailored presentations to Key Stage 2 and 3 pupils, community groups, and attendees at major public events. These include the Foyle Maritime Festival, W5 Science event, NI Civil Service Environmental Day, Citibank Green Day, and numerous local fairs.

In 2024/25 approximately 19,000 school pupils received education on the environmental and infrastructural consequences of flushing inappropriate materials. Over 10,000 individuals engaged

at community events were informed about NI Water's core environmental initiatives, including the 'Bin it' and fats, oils, and grease campaigns. These efforts continue to reinforce the importance of responsible waste disposal and protect Northern Ireland's wastewater infrastructure and natural environment.



NI Water's Outreach and Learning Officer with pupils from Donegall Road Primary School Belfast, County Antrim.

Towards net zero

Refer to our TCFD section on page 105.

 Find out more about protecting and enhancing the natural environment in our TNFD section on page 119.

